

**REMARKS**

Claims 1-20 were originally filed in the present application.

Claims 1-20 are pending in the present application.

Claims 1-20 were rejected in the May 17, 2005 Office Action.

No claims have been allowed.

Claims 1-4, 10 and 13 are amended herein

Claims 1-20 remain in the present application.

Reconsideration of Claims 1-20 is respectfully requested.

In Sections 2 and 3 of the May 17, 2005 Office Action, the Examiner rejected Claims 1-20 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. In particular, the Examiner asserted that the term “Capable of” rendered Claims 1-4, 10 and 13 indefinite. The Applicants strongly disagree with the Examiner’s assertions regarding the term “capable of” and note that this term is commonly used in the claims of many thousands of issued patents. Nonetheless, in the interest of expediting the prosecution of the present application, the Applicants have amended Claims 1-4, 10 and 13 to eliminate this term, even though such a change is wholly unnecessary.

In Sections 4 and 5 of the May 17, 2005 Office Action, the Examiner rejected Claims 1 and 11 under 35 U.S.C. §102(b) as being anticipated by U. S. Patent No. 6,031,831 to *Tan Boon et al.* (hereafter, simply “*Tan Boon*”). In rejecting Claims 1 and 11, the Examiner cited the text of the *Tan Boon* reference at column 3, lines 14-21, and column 6, line 52, to column 7, line 14. Among other

things, the Examiner asserted that the *Tan Boon* reference discloses 1) a spatial signature estimator capable of obtaining a spatial signature from a signal received by a base transceiver station from a first mobile antenna and a spatial signature from a signal received by the base transceiver station from a second mobile antenna, and 2) correlation circuitry that uses the spatial signatures from the first and second mobile antennas to identify a least changing spatial signature and to obtain a beamforming weight vector from the least changing spatial signature.

The Applicants respectfully disagree with the rejections of Claims 1 and 11 under 35 U.S.C. §102(b) and direct the Examiner's attention to Claim 1, which recites the unique and non-obvious limitations emphasized below:

1. For use in wireless network communications system comprising a base transceiver station having an adaptive antenna array and a mobile station having a first mobile antenna and a second mobile antenna, an apparatus for improving downlink performance of said adaptive antenna array of said base transceiver station, said apparatus comprising:

a spatial signature estimator associated with said base transceiver station, said spatial signature estimator operable to obtain a spatial signature from a signal received by said base transceiver station from said first mobile antenna and further operable to obtain a spatial signature from a signal received by said base transceiver station from said second mobile antenna; and

correlation circuitry coupled to said spatial signature estimator, said correlation circuitry operable to use spatial signatures obtained from said first mobile antenna and from said second mobile antenna to identify a least changing spatial signature and further operable to use said least changing spatial signature to obtain a downlink beamforming weight vector. (emphasis added)

The Applicants respectfully assert that the above-emphasized limitations are not disclosed, suggested or even hinted at in the *Tan Boon* reference.

In rejecting Claim 1, the Examiner relied on the text of the *Tan Boon* reference at column 3, lines 14-21, and column 6, line 52, to column 7, line 14. The text at column 3, lines 14-21, states as follows:

FIG. 1 shows a block diagram of a communications system. A first communications unit is shown as a Base Station (BS) 10 and a second communications unit is shown as a Mobile Station (MS) 20. The communications system includes the BS 10, having both a transmitter 12 and a receiver 14 operably coupled to an antenna 16, for communicating to the MS 20 having both a transmitter 22 and a receiver 24 operably coupled to an antenna 26.

The text of the *Tan Boon* reference at column 6, line 52, to column 7, line 14, states:

FIG. 5 shows a flow diagram illustrating a method for implementing such a reverse channel sounding packet technique in an assisted distributed antenna diversity system. A Base Station BS has 'M' antennae, a Mobile Station MS has 'N' antennae, as shown in step 300, and the BS wishes to transmit data to the MS. An antenna counter "m" is initiated by the MS as in step 302, and the MS transmits a CSP using a first antenna ( $m=1$ ) as shown in step 304. The BS receives the CSP on each of its M antennae, processes the information and then compares the received quality values from the different M antennae to determine, and then store, the optimum antenna choice, for the first CSP transmitted as shown in step 306. The antenna counter is then incremented ( $m=2$ ) at the MS, as in step 308, and if a second antenna is available (i.e.  $m \leq N$ ), step 310, the MS transmits the CSP again using the second antenna, step 304. The BS processes the CSP information to determine whether an improved signal has been received from the second antenna of the MS on any of the N base antennae as shown in step 306. This process is repeated until all of the MS's antennae have transmitted a CSP. The antenna of the BS that received the best quality CSP is then selected for the transmission of data from the BS to the MS, in the next time frame, as in step 312. This process is continued for further transmissions as shown in step 314. The reciprocal nature of the propagation channel ensures that the optimum antenna when receiving the CSP from the MS is also the optimum antenna for transmitting data from the BS to the MS. The BS may decide to transmit to the MS on more than one antenna to allow the communications system the ability to use beamforming techniques as known to those skilled in the art.

The Applicants respectfully submit that the channel sounding packets (CSP) that each mobile station antenna transmits in the *Tan Boon* reference are not that same as, or equivalent to, the spatial signature information recited in Claim 1. The channel sounding packets of the *Tan Boon* reference

are packets of eight symbols that are used to determine channel conditions, such as multipath and fading effects. See *Tan Boon* at column 3, lines 32-51.

Nowhere does the *Tan Boon* reference disclose that the spatial signatures of the mobile station antennas are compared to each other to determine a least-changing spatial signature. Moreover, nowhere does the *Tan Boon* reference disclose that the least-changing spatial signature is used to for any beamforming purpose.

In sum, Claim 1 recites limitations that are not disclosed, suggested or even hinted at in the *Tan Boon* reference. This being the case, Claim 1 is patentable over the *Tan Boon* reference. Also, dependent Claims 2-10 depend from Claim 1 and contain the same unique and non-obvious limitations recited in Claim 1. Thus, Claims 2-10 are patentable over the *Tan Boon* reference.

Furthermore, independent Claim 11 recites limitations that are analogous to the unique and non-obvious limitations that are recited in Claim 1. This being the case, Claim 11 is patentable over the *Tan Boon* reference. Finally, dependent Claims 12-20 depend from Claim 11 and contain the same unique and non-obvious limitations recited in Claim 11. Thus, Claims 12-20 are patentable over the *Tan Boon* reference.

**SUMMARY**

For the reasons given above, the Applicants respectfully request reconsideration and allowance of pending claims and that this Application be passed to issue. If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this Application, the Applicants respectfully invite the Examiner to contact the undersigned at the telephone number indicated below or at *jmockler@davismunck.com*.

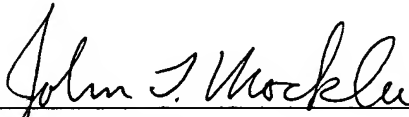
The Commissioner is hereby authorized to charge any additional fees connected with this communication or credit any overpayment to Deposit Account No. 50-0208.

Respectfully submitted,

DAVIS MUNCK, P.C.

Date: 17 August 2005

P.O. Drawer 800889  
Dallas, Texas 75380  
Phone: (972) 628-3600  
Fax: (972) 628-3616  
E-mail: *jmockler@davismunck.com*

  
\_\_\_\_\_  
John T. Mockler  
Registration No. 39,775